

### **Claims**

1. Material, comprising a component suitable for hydrogen storage purposes selected from alkali alanate, a mixture of aluminum metal with alkali metal and/or alkali metal hydride and magnesium hydride or mixtures thereof, characterized in that the hydrogen storage component is encapsulated in a porous matrix.
2. Material according to claim 1, wherein said porous matrix is selected from solid inorganic materials, preferably from porous carbon, mesostructured carbon, carbon xerogel, carbon aerogel, silica aerogel, silica xerogel, zeolite.
3. Material according to claim 1 or 2, wherein said porous matrix comprises porous metal organic frameworks.
4. Material according to claim 1, characterized in that the hydrogen storage component contains a transition metal, transition metal compound, rare-earth metal and/or rare-earth metal compound.
5. process for preparing of material comprising a component suitable for hydrogen storage purposes selected from alkali alanate, a mixture of aluminum metal with alkali metal and/or alkali metal hydride and magnesium hydride or mixtures thereof, comprising the steps of impregnating the porous matrix material with a solution and/or suspension of said components in an organic solvent and removing the organic solvent.
6. Use of material according to any of claims 1 to 5 as a hydrogen storage material, especially for supplying fuel cell systems of fuel cell vehicles with hydrogen.